AMENDMENTS TO CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A high speed search method in a speech encoder using an order character of LSP (Line Spectrum Pair) ~~coefficients~~ parameters in ~~a~~ an LSP ~~count~~ parameter quantizer using SVQ (Split Vector Quantization) used in a low-speed transmission speech encoder, the high-speed search method comprising the steps of:

rearranging a first codebook by replacing the first codebook with a new codebook in which a number of code vectors in the new codebook are arranged in an order according to an element value of a reference row of the first codebook for determining a range of code vectors to be searched; and

determining a search range by using an order character between a given target vector and an arranged code vector to obtain an optimal code vector.

2. (Currently Amended) The high-speed search method as claimed in claim 1, wherein the rearranging step comprises the steps of:

selecting the reference row in ~~each~~ the first codebook by using a plurality of voice data, and then determining an optimal arrangement position (Nm) in which an average search range is minimized; and

replacing the first codebook with ~~a~~ the new codebook in which a number (Lm) of code vectors in the new codebook are arranged in a descending order according to ~~an~~ the element value of ~~the~~ a selected said reference row.

3. (Currently Amended) The high-speed search method as claimed in claim 1, wherein the code vector-obtaining step comprises the step of:

determining the search range by forward and backward comparison of the element value of the reference row in the ~~arranged~~ first codebook and element values of ~~rows~~ positions before and after ~~the~~ a reference position in the target vector; and

obtaining an error criterion ($E_{l,m}$) having high computational complexity by using the ~~below Equation 2~~ following equation only within the determined search range:

$$E_{l,m} = \{p_m - p\}_{l,m}^T W_m \{p_m - p\}_{l,m}$$

$$0 \le m \le M - 1$$

$$1 \le l \le L_m$$

where l,m in the subscript of $E_{l,m}$ are indices that represent the *l*th index of the *m*th codebook, *i.e.*, the letters "*l*" and "m," and

where superscript T designates the transpose of $\{p_m - p\}_{l,m}$ for purposes of determining the dot product of $\{p_m - p\}_{l,m}$ and $W_m \{p_m - p\}_{l,m}$ in order to calculate the least-mean-square error $E_{l,m}$.

4. (Currently Amended) The high-speed search method as claimed in claim 3,

wherein the search range is an average number with which an element value of the n^{th} row in the ~~arranged~~ first codebook and element values in the $n+1^{th}$ and $n-1^{th}$ positions of the target vector satisfy the order character.

5. (Currently Amended) A high-speed search method in the G.729 fixed codebook with decreased computational complexity without loss of tone quality, the high-speed search method comprising the steps of:

arranging position indexes of ~~tracts~~ tracks (t_0, t_1, t_2) in a descending order according to a correlation level (d'(n));

determining a range to search a ~~tract~~ track (t3) according to the indexes arranged in a descending order; and

canceling the detecting and searching processes which ~~has~~ have a low probability.

6. (Currently Amended) The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the arranging step comprises the step of:

comparing correlation vectors of all of ~~the~~ pulse position indexes in each track to ~~arranging~~ arrange the position indexes in a descending order.

7. (Currently Amended) The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the search range-determining step comprises the steps of:

adding correlation values of each pulse position index for ~~the~~ a pulse position index combination of the tracks (t_0, t_1, t_2); and

comparing ~~the~~ an added result with a threshold (Cth) determined before ~~the search of~~ searching the fixed codebook to search track (t3) using ~~an~~ the added result more than the threshold.

8. (Currently Amended) The high-speed search method in the G.729 fixed codebook as claimed in claim 5, wherein the canceling step comprises the step of:

canceling the searching process for the range where ~~the~~ an added result is less than ~~the~~ a threshold.